Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Wireless Telecommunications Bureau and Consumer and Governmental Affairs Bureau Seek Comment on Accessible Mobile Phone Options for People who are Blind, Deaf-blind, or Have Low Vision	)	CG Docket No. 10-145

To: The Commission

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

I. INTRODUCTION.

CTIA – The Wireless Association® ("CTIA")[1] submits the following comments in response to the Federal Communications Commission's ("FCC" or "Commission") Public Notice seeking comment on the mobile communications options available for persons with disabilities, including the blind, deaf-blind and persons with low vision ("vision impaired").[2] Given the rapid pace of innovation in the wireless ecosystem and the many contributors to the innovation cycle, CTIA respectfully submits that the Commission may best ensure access to mobile phones for persons with disabilities by engaging key stakeholders to raise awareness for accessible wireless solutions through

[1] CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service ("CMRS") providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

[2] Wireless Telecommunications Bureau and Consumer and Governmental Affairs Bureau Seek Comment on Accessible Mobile Phone Options for People who are Blind, Deaf-blind, or Have Low Vision, CGB Docket No. 10-145, *Public Notice*, DA 10-1324 (rel. July 19, 2010) ("Public Notice").

consumer and content producer education initiatives, further explore the recommendations in the National Broadband Plan to update subsidy programs to address equipment needs of the deaf-blind community, recognize the significant contributions of mobility and innovation that the wireless industry provides persons with disabilities, over other fixed wireline or broadband communications products, and proceed cautiously with regard to any proposed regulatory mandates that may hinder development of new features that would benefit the blind, deaf-blind, and low vision communities.

As the Commission has previously outlined and CTIA has stated through numerous filings, innovation and competition throughout the wireless ecosystem has created unprecedented opportunities and choice in communications products and services for the accessibility community.[3] In the face of unique technical and regulatory challenges, the wireless industry continues to be a diverse and ever-changing ecosystem which is providing novel value and solutions for the blind, deaf-blind and low vision communities. Notably, the preliminary results of the Rehabilitation Engineering Research Center for Wireless Technologies' ("Wireless RERC") 2010 Survey of User Needs ("2010 SUN") found that 92 percent of visually impaired respondents use wireless devices, including 70 percent who use wireless devices every day, 74 percent who reported high satisfaction with their devices and 78 percent saying their devices were

[3] *See* Elizabeth Lyle, *A Giant Leap & A Big Deal: Delivering on the Promise of Equal Access to Broadband for People with Disabilities*, FCC OBI Working Paper Series, 13 (April 2010) ("FCC Accessibility White Paper"); Comments of CTIA – The Wireless Association®, WT Docket No. 10-133 (filed July 30, 2010) ("CTIA Mobile Wireless Competition Comments").

either easy or very easy to use.[4] As wireless handsets get "smarter," wireless adoption increases and the cost of handsets and service plans continue to decline, CTIA recognizes that the wireless industry is continuously making strides to provide increased accessibility for the blind, deaf-blind and low vision communities.

As part of the Accessibility and Innovation Initiative, the FCC recently asked what industry can do to further ensure that consumers are aware of the great number of accessibility applications that are available now and may become available in the future.[5] CTIA is pleased to inform the Commission that on September 23, 2010, CTIA will begin a collaborative process with consumer representatives, Commission staff and CTIA's member companies to determine the best way to make this information available to consumers by updating and expanding the wireless association's accessibility website, *www.AccessWireless.Org*. CTIA looks forward to the participation of consumer representatives and Commission staff and believes this collaborative effort will help consumers find information about the accessible wireless products, services and applications available in the fast-moving, innovative and ever-changing wireless industry.

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[4] Rehabilitation Engineering Research Center for Wireless Technologies ("Wireless RERC"), *SUNSpot - About Wireless Users with Visual Impairment* (Sept. 9, 2010), *available at* http://www.wirelessrerc.org/publications/publication_files/SUNspot_Blind-LowVision_2010-09-10.doc/view ("Wireless RERC SUNSpot").

[5] Karen Peltz Strauss, *Private and Public Stakeholders to Collaborate on Better Informing Consumers About Accessible Apps*, BlogBand, July 26, 2010, http://blog.broadband.gov/?entryId=600838.

II. WIRELESS COMPETITION AND INNOVATION ENSURES A VARIETY OF ACCESSIBLE MOBILE PRODUCTS AND SERVICES FOR PERSONS WITH DISABILITIES.

In recent filings, CTIA has presented data demonstrating that United States consumers have the kind of choices and value that consumers around the world strive for. CTIA member companies serve more than 285 million subscribers, including 122 million total wireless 3G subscriptions at the end of 2009, carried more than 1.5 trillion text messages on their networks in 2009, and offer a wide variety of services and plans.[6] At least 33 companies manufacture more than 630 unique devices for the U.S. market – more devices than in any other country in the world.[7] These devices are powered by eleven independent operating systems.[8] With the increased availability of mobile data services and significant growth and adoption of smart phones, an explosion of "apps" to run on wireless devices has also occurred. To date, there are more than 300,000 "apps" available from seven different stores which consumers have downloaded over six billion times.[9]

The wireless ecosystem in the U.S. is characterized by the extraordinarily large number of handsets manufactured for the U.S. market, the diversity of wireless devices, the innovation that occurs in the device market, and the fact that the most anticipated devices are launched in the U.S. first. These devices range from simple, voice and text-only phones ("messaging phones") to complex devices used to access a variety of

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[6] *See* CTIA Mobile Wireless Competition Comments at ii.

[7] *Id.*

[8] *Id*

[9] *Id.* at 28.

wireless broadband content ("smart phones") and, in-between, devices with enhanced, but more specific functionality ("feature phones"). Non-phone wireless devices such as tablets and electronic readers ("e-readers") also continue to grow in popularity, including Apple's iPad, Amazon's Kindle, Barnes & Noble's Nook and Sony's Reader. These new products further underscore the competition-driven innovation that characterizes the wireless device market.

As a result of the wireless industry's collective commitment to key accessibility issues, prior barriers to the accessibility community's adoption of wireless – such as cost and accessibility – have lowered and the accessibility community's satisfaction with the wireless industry continues to increase. For example, AT&T offers the Text Accessibility Plan ("TAP") on wireless handsets, including the iPhone, for qualifying consumers that may include unlimited Internet usage and text messages.[10] Sprint's Relay Data Only Plan includes unlimited e-mail, Internet access, Instant Messaging ("IM"), and domestic text messaging.[11] T-Mobile's Blackberry and Smartphone data plans include unlimited e-mail, instant messaging, Internet access, and text messaging.[12] Verizon Wireless offers Nationwide Messaging plans that include unlimited Internet access and

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[10] AT&T, Hearing Aid Compatibility and Wireless Phones, http://www.wireless.att.com/learn/articles-resources/disability-resources/hearing-aid-compatibility.jsp#tap (last visited Sept. 13, 2010).

[11] Sprint, Sprint Relay Store, http://sprintrelaystore.com (last visited Sept. 13, 2010).

[12] T-Mobile, Internet & E-Mail Plans, http://www.t-mobile.com/shop/plans/Cell-Phone-Plans.aspx?catgroup=Internet-Email-cell-phone-plan&WT.z_unav=mst_shop_plans_internet (last visited Sept. 11, 2010); *see also* T-Mobile, T-Mobile Accessibility: TTY Policy, http://www.t-mobile.com/Company/Community.aspx?tp=Abt_Tab_Safety&tsp=Abt_Sub_TTYPolicy (last visited Sept. 13, 2010).

text, picture, instant and video messaging.[13] As described below, wireless devices also include built-in accessibility features, compatibility with Assistive Technology ("AT"), such as TTY and Braille readers, or compatibility with third party accessible software.

As the Commission has recognized, persons with disabilities can find these innovative mobile devices to replace expensive, immobile assistive communication devices at significantly less cost.[14] Because wireless carriers offer these service plans and devices subsidized for post-paid customers, the wireless industry provides the accessibility community a means to ensure wireless services and devices are affordable for persons with disabilities. A recent survey suggested that more than 80 percent of persons with disabilities own or have access to a wireless communications device and use their wireless device for text-based communications (text messaging, e-mail, and instant messaging) and Internet access.[15] Although the challenges of providing accessible mobile phones for the blind, deaf-blind and persons with low vision continue, the examples described below clearly demonstrate the wireless industry is moving in the right direction to provide increased accessibility for these communities.

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[13] Verizon Wireless, Accessibility Products & Services Overview, http://aboutus.vzw.com/accessibility/index.html (last visited Sept. 13, 2010).

[14] Federal Communications Commission, Connecting America: The National Broadband Plan 181 (2010), *available at* http://www.broadband.gov/plan/ ("*National Broadband Plan*"); *see also* FCC Accessibility White Paper at 13.

[15] Wireless RERC, *Second Report: Findings of the Survey of User Needs (SUN) for Wireless Technology 2007-2009*, 5 (Mar. 2009) ("Second SUN for Wireless Technology 2007 – 2009").

III. THE MULTI-FACETED NATURE OF THE WIRELESS ECOSYSTEM PRESENTS UNPRECEDENTED OPPORTUNITIES FOR PERSONS WITH VISION IMPAIRMENTS.

For the blind, deaf-blind and persons with low vision, the multi-faceted wireless ecosystem of handsets and devices, operating systems and third party applications are improving accessibility in their daily lives through a combination of mobility and innovation. For persons with low vision, magnifiers to help read fine print such as bills, menus and other important documents were once available only on specialized equipment the size of large, immobile screens on televisions or desktop computers. Today, wireless handsets become mobile magnifiers by utilizing built-in camera and enhanced screen features, such as zoom and font-size, or available as third party applications with enhanced features. For the blind, charting unfamiliar territory such as crowded streets and mass transit required significant planning and the help of colleagues, friends and family. Today, mobile handsets with text-to-speech features or Braille display compatibility and global positioning system ("GPS") technology can read aloud on-screen maps and points of interest for orientation and bus and train arrival and departure information for efficiency and safety.[16]

In addition, Chairman Julius Genachowski has often recounted that "when I was in high school on a college trip with my father, he took me into the stacks of the [Massachusetts Institute of Technology] library, and showed me engineering plans he had

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[16] *See* James Irwin, *Smartphones Become Essential Accessories for the Blind*, THE BAY CITIZEN, June 6, 2010, *available at* http://www.youtube.com/watch?v=NQKtSR5Li1A; and Ovi Blog, Ovi Maps for visually impaired users: meet Carsten from Germany (Aug. 5, 2010), http://blog.ovi.com/2010/08/05/ovi-maps-for-visually-impaired-users-meet-carsten-from-germany/; *see also* FCC Accessibility White Paper at 13.

drafted as a graduate student studying engineering… [for] a device designed to someday help blind people 'read' words on paper by translating text into physical signals."[17] Today, Chairman Genachowski's memory is a blind individual's reality as optical character recognition (OCR) and augmented reality applications, such as the IDEAL Item Identifier, knfbReader, and LookTel, can be loaded onto mainstream smart phones and utilize built-in camera features and text-to-speech solutions to verbalize printed pages, labels or locations.[18] While there may be an infinite number of current and future examples, mobile handsets and devices, driven by competition, investment, and market demand, are clearly improving the daily lives of the blind, deaf-blind and persons with low vision in unprecedented ways.

Notably, the preliminary results of the Wireless RERC's 2010 SUN found that 92 percent of visually impaired respondents use wireless devices, including 70 percent who use wireless devices every day, 74 percent who reported high satisfaction with their devices and 78 percent saying their devices were either easy or very easy to use.[19] Among visually impaired respondents, the Wireless RERC's *2010 SUN* also found high usage of voice functions, including phone calls, contacts and voicemail, and use of text

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[17] Julius Genachowski, Chairman, FCC, Empowering Americans with Disabilities Through Technology, Americans with Disabilities Act 20th Anniversary Celebration (July 19, 2010), *available at* http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db0719/DOC-299947A1.pdf.

[18] Apps4Android, Inc., http://apps4android.org/index.htm (last visited Sept. 13, 2010) (available on the Android Market); LookTel – Mobile Object Recognition and Remote Assistance Solutions for Visually Impaired Users, http://www.looktel.com/ (last visited Sept. 13, 2010) (available for the HTC Touch Pro 2 with Windows Mobile); K–NFB Reading Technology, Inc., http://www.knfbreader.com/ (last visited Sept. 13, 2010) (available for the Nokia N82 with Symbian).

[19] Wireless RERC SUNSpot at 1.

and data functions, such as text messaging, calendar, e-mail, Internet browsing, sending photos or videos, location-based services, downloading applications and mHealth. In addition, 36 percent of respondents say they added assistive technology ("AT") or modified their device with third party software, such as a screen reader, magnifier or text-to-speech solution. These results demonstrate that vision impaired respondents were able to find and utilize wireless handsets and services.

IV. INDUSTRY-LED INNOVATION IN WIRELESS HANDSETS AND DEVICES, PLATFORMS, AND APPLICATIONS OFFER A VARIETY OF ACCESSIBLE PRODUCTS AND SERVICES FOR BLIND, DEAF-BLIND, AND LOW VISION INDIVIDUALS.

The wireless industry is a diverse and ever-changing ecosystem which requires many components to provide accessible solutions for the blind, deaf-blind and low vision communities. From hardware manufacturers to software and application developers to wireless carriers, the diverse and, often, competitive components of the wireless ecosystem are working and making strides to provide enhanced access to mobile communications, content and applications for these communities.

A. Phones, Handsets & Devices

The U.S. wireless ecosystem is characterized by the extraordinarily large number of handsets that are manufactured for the U.S. market, the diversity of wireless devices, the innovation that occurs in the device market, and the fact that the most anticipated devices are launched in the U.S. first. With at least 33 companies manufacturing more than 630 unique devices for the U.S. market – more devices than in any other country in the world – there can be no doubt about the vibrant competitiveness of the U.S. wireless

device market.[20] For the blind, deaf-blind and low vision communities, this era of intense phone, handset and device competition is providing more accessible, diverse and innovative electronic communication and information tools at varying price points.

Mobile handsets range from simple, streamlined messaging phones to multi-function feature phones with basic accessibility features such as (1) function keys that control the menu navigation; (2) nibs or tactile indicators that allow for quick location of the adjacent keys; (3) display keys that offer available options to select backlighting options, contrast, font size and illumination; and (4) voice recognition software to dial and perform menu commands.[21] For example, Nokia's 6350, which is available from AT&T for free with a new two-year service agreement, is offered with a large screen, standard dial-pad keys, bumps around the "5" key for orientation, and support for third party text-to-speech software.[22] Samsung's Haven has a bright screen, large dial-pad keys with bumps around the "5" key for orientation, in-case-of-emergency (ICE) numbers and shortcut buttons to key features such as voice mail and voice command, which is available from Verizon Wireless for $39.99 with a new two-year service

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[20] CTIA Mobile Wireless Competition Comments at ii.

[21] CTIA – The Wireless Association®, AccessWireless.org - Accessible Wireless Features for the Blind or Visually Impaired, http://www.accesswireless.org/product/visual.cfm (last visited Sept. 13, 2010); *see also* American Foundation for the Blind, AFB TECH Evaluates Cell Phones, http://www.afb.org/Section.asp?SectionID=57&DocumentID=2419 (last visited Sept. 13, 2010).

[22] Kent German, *Nokia 6350 – red (AT&T)*, CNET, Nov. 23, 2009, http://reviews.cnet.com/cell-phones/nokia-6350-red-at/4505-6454_7-33774369.html?tag=contentMain;contentBody;1r#reviewPage1.

agreement.[23] LG's enV3 has voice command, menu and text message read out for select features, which is available from Verizon Wireless for $79.00 with a new two-year service agreement.[24] In addition, the Jitterbug has a large-key pad, a "dial-tone", and a customizable display for consumers who want simple handsets that just enable voice calling and available for $99.00.[25]

On the other end of the spectrum, smart phones represent one of the greatest areas of growth for the wireless ecosystem and, as a result of this increased demand and the increased competition to serve this demand, manufacturers are expanding the built-in accessibility functions of smart phones while lowering their prices. Nokia's E73 smart phone contains a built-in "talking theme" to verbalize pre-designated shortcuts and functions, which is available from T-Mobile for $49.99 with a new two-year service agreement.[26] T-Mobile's MyTouch 3G Slide comes with a "Genius Bottom" that is a short cut for Nuance's Dragon Dictation voice command software to control calling functions, compose, send and read back messages, and search the Web and maps, which is available for $179.99 with a new two-year service agreement.[27] Motorola's Droid 2

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[23] Jessica Dolcourt, *Samsung Haven - black (Verizon Wireless)*, CNET, Aug. 5, 2010, http://reviews.cnet.com/cell-phones/samsung-haven-black-verizon/4505-6454_7-34139825.html#reviewPage1.

[24] Verizon Wireless, Voice Commands and Menu Readout, http://aboutus.vzw.com/accessibility/voicecommands.html (last visited Sept. 13, 2010).

[25] Jitterbug, http://www.jitterbug.com (last visited Sept. 13, 2010).

[26] Bonnie Cha, *Nokia E73 (T-Mobile)*, CNET, June 14, 2010, http://reviews.cnet.com/smartphones/nokia-e73-mode-t/4505-6452_7-34117965.html?tag=contentMain;contentBody;1r.

[27] T-Mobile, Introducing the New MyTouch 3G Slide Android Phone, http://mytouch.t-mobile.com (last visited Sept. 13, 2010).

smart phone is available with a pull-out keyboard, voice readout and search applications, and a zoom-mode for low vision magnification, which is available from Verizon Wireless for $199.99 with a new two-year service agreement.[28] Apple's recent iPhone4 comes equipped with the proprietary screen reader technology VoiceOver, Zoom for enlarging on-screen content, customizable contrast and support for more than 30 Bluetooth wireless Braille displays in more than 24 international languages, which is available from AT&T starting at $199.00 with a new two-year service agreement.[29] Conventional wisdom may assume that touch screen devices are inaccessible for persons with vision impairments but when combined with screen reader and text-to-speech functionality, a touch screen's virtual buttons and limited tactile inputs may enhance the accessibility of certain handsets by prioritizing ease of use features.[30]

Non-phone wireless devices also continue to grow in popularity, offered at a range of price points and incorporate accessibility features. For example, tablets and e-readers such as Apple's iPad, Amazon's Kindle, Barnes & Noble's Nook and Sony's Reader are all equipped with features to adjust font size and screen brightness for persons with low vision and the iPad and Kindle are available with built-in text-to-speech

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[28] T. V. Raman, *Eyes-Free Review: Droid2 From MOT*, EYES-FREE ANDROID, Aug. 24, 2010, http://eyes-free.blogspot.com/2010/08/eyes-free-review-droid2-from-mot.html; Bonnie Cha, *Motorola Droid 2 (Verizon Wireless)*, CNET, Aug. 12, 2010, http://reviews.cnet.com/motorola-droid-2-review?tag=contentMain;contentBody;1r.

[29] Apple, Inc., iPhone 4 – Accessibility Features Are Built Right In, http://www.apple.com/iphone/features/accessibility.html (last visited Sept. 13, 2010).

[30] John Herman, *Giz Explains: How Blind People See the Internet*, GIZMODO, Aug. 24, 2010, http://gizmodo.com/5620079/giz-explains-how-blind-people-see-the-internet.

functionality for the blind.[31] These new products further underscore the competition-driven innovation which characterizes the wireless handset and device market as these devices are increasingly available with built-in accessibility features for the blind, deaf-blind and low vision communities.

B. Platforms

Central to the provision of accessible mobile products and services are sophisticated software operating systems ("platforms") capable of handling more advanced functions and applications and necessary to run more demanding devices. Mobile platforms are important because they manage both the hardware features of the device, such as the antennas, camera, speakers, microphones, touch screen, thumbwheel and keyboards, as well as software applications like email, text-messaging, web browsing, GPS functionality, screen readers, voice control and other applications. Mobile operating systems are responsible for how users interact with these functions and features.

On multiple handset operating systems, smart phones and other wireless devices are available with advanced accessibility features such as screen readers, voice control and GPS technologies. There are also dozens of smart phones available with Google's Android platform from manufacturers such as Samsung, Motorola, and HTC, which may be available with built-in screen reader and text-to-speech features, named TalkBack, SoundBack and KickBack, and are available at a variety of prices from numerous

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[31] Jacqui Cheng, *In e-reader accessibility race, new Kindle, iPad in front*, ARSTECHNIA, Sept. 8, 2010, http://arstechnica.com/gadgets/news/2010/08/for-visually-impaired-most-e-readers-barely-measure-up.ars.

wireless carriers.[32] As previously noted, Apple's operating system for the iPhone and iPad comes with VoiceOver, Zoom and other features for blind, deaf-blind and low vision users. In addition, text-to-speech functions are built-in to Nokia's Symbian operating system for their Series 60 and Series 80 phones and Microsoft's Windows Mobile offers a variety of accessibility features.[33]

In the last few years, the number of companies producing independent operating systems for mobile wireless devices has blossomed to at least eleven. In some cases, mobile handset manufacturers may be able to utilize high-functioning proprietary accessibility programs already available on personal computing operating systems, such as screen readers, and modify them for mobile handsets. However, many mobile platforms are designed for specific wireless handsets or devices and manufacturers or carriers must license or purchase third party software to provide high-functioning accessibility solutions. The Commission should recognize that not every mobile platform may readily incorporate high-functioning accessibility solutions and that the differences in mobile platforms provide additional choice and value to consumers, carriers, application developers, and other participants in the mobile wireless ecosystem.

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[32] T.V. Raman, *More Accessibility Features in Android 1.6*, GOOGLE BLOG, Oct. 20, 2009, http://googleblog.blogspot.com/2009/10/more-accessibility-features-in-android.html; *see also* Darren Burton, *Can an Android Make Your Mobile Phone Accessible?*, ACCESSWORLD, May 2010, http://www.afb.org/afbpress/pub.asp?DocID=aw110202.

[33] Nokia, Nokia Accessibility: Text-to-Speech, http://www.nokiaaccessibility.com/tts.html (last visited Sept. 13, 2010); Microsoft, Accessibility Features, http://www.microsoft.com/windowsmobile/en-us/help/v6-5/Accessibility-features-touch.aspx (last visited Sept. 10, 2010).

C. Software & Applications

Once a wireless product is available in the market, third party accessibility solutions and applications present additional opportunities to serve the blind, deaf-blind and low vision communities. As the Commission noted, some third party vendors offer proprietary solutions, such as Humanware's Deaf-Blind Communicator, which connects wirelessly to a cell phone and allows a person who is deaf-blind to communicate face to face (the other person uses the cell phone key board) or using TTY, short message service (SMS), or web browser/e-mail capabilities.[34] In other cases, wireless manufacturers and carriers work directly with third parties to develop software for blind and low vision users on specific handsets and offer such solutions at discounted rates. For example, AT&T and Verizon Wireless offer screen reader and magnifier software from Code Factory and Nuance, respectively, at significantly reduced rates than the same software is available from third party vendors and for handsets already subsidized with specific wireless service plans.[35] In addition, Research in Motion ("RIM"), CodeFactory and Humanware collaborated to develop Oratio for BlackBerry®, a screen reader solution which provides access to voice and text communications, such as instant messaging, e-mails, and SMS,

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[34] FCC Accessibility White Paper at 14; *see also* Humanware USA, DeafBlind Communicator: Opening Doors to the World, http://www.humanware.com/en-usa/products/blindness/deafblind_communicator/_details/id_118/deafblind_communicator.html (last visited Sept. 10, 2010).

[35] *Compare* AT&T, *Mobile Speak and Mobile Magnifier*, http://www.wireless.att.com/about/disability-resources/mobile-speak-magnifier.jsp (last visited Sept. 10, 2010) (offering Mobile Speak for $89.00), *with* ATGuys.com, http://www.atguys.com/store/ (last visited Sept. 10, 2010) (offering Mobile Speak for $275.00), *and* Vision Cue, http://www.visioncue.com/MobileSpeak.html (last visited Sept. 10, 2010) (offering Mobile Speak for $295.00). *See also,* Verizon Wireless, *TALKS™*, http://aboutus.vzw.com/accessibility/talks.html (last visited Sept. 10, 2010).

and calendar functions, such as appointments and tasks with alarms and reminders.[36] These third party solutions may be developed after a specific product or operating system has already entered and tested the market to provide more advanced accessibility solutions than may have been achievable for the original manufacturer or software developer.

CTIA's recent filings have also charted the tremendous growth in applications for mobile phones, which represents part of a broader trend toward openness on the part of participants in the wireless ecosystem. As wireless networks have evolved to support robust broadband experiences, as devices have evolved to feature increased functionality in Internet access, and as smart phones continue to proliferate, an explosion of applications designed to run on these networks and devices is occurring. The wireless industry recognizes the significant potential mobile applications offer to improve accessibility because such applications are available for the consumers to choose without incorporating specific hardware.

As of today, there are well over 300,000 applications available, including those specifically designed for vision impaired individuals and general purpose applications that have been designed to utilize built-in or third party accessibility solutions. For example, voice recognition applications, such as Dragon Dictation and Vlingo, allow blind or low vision users to "speak" text communications, update social networking applications, search websites and control many other general purpose functions with their

[36] Humanware USA, Oratio Screen Reader for BlackBerry®, http://www.humanware.com/en-usa/products/blindness/oratio_for_blackberry_smartphones/_details/id_131/oratio_for_blackberry_smartphones.html (last visited Sept. 13, 2010).

voice.[37] Optical character recognition (OCR) applications, such as the IDEAL Item Identifier, knfbReader, and LookTel, utilize a smart phone's built-in camera features and text-to-speech solutions to verbalize printed pages, labels or locations.[38]

This growth in applications has occurred hand-in-hand with manufacturer and carrier efforts to provide resources, including opening their networks and operating systems, to applications developers. Wireless manufacturers, such as Apple, Google, and RIM, include accessibility guides in their application programming interfaces (API) that encourage application developers to design general applications to be accessible with the built-in or third party screen reader and text-to-speech features previously described.[39] AT&T's devCentral, T-Mobile's Partner Network Program and Verizon Wireless's Open Development Initiative and Developer Community also encourage third-party developers to produce new devices and applications that are compatible with their specific networks.[40]

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[37] Nuance, Dragon Dictation, Dragon Search, Dragon for E-Mail Apps, http://www.dragonmobileapps.com/index.html (last visited Sept. 11, 2010) (available for the Apple App Store and Blackberry® App World); Vlingo, http://www.vlingo.com (last visited Sept. 11, 2010) (available for the Android™, iPhone OS, Blackberry®, Nokia and Windows Mobile).

[38] See *supra note* 18.

[39] RIM, Inc., BlackBerry® Accessibility Development Guide, http://docs.blackberry.com/en/developers/?userType=21 (last visited Sept. 10, 2010); Apple, Inc., Accessibility Programming Guide for iPhone OS, http://developer.apple.com/library/ios/#documentation/UserExperience/Conceptual/iPhoneAccessibility/Introduction/Introduction.html (last visited Sept. 10, 2010); Google, TalkBack: An Open Source Screenreader for Android, http://google-opensource.blogspot.com/2009/10/talkback-open-source-screenreader-for.html (last visited Sept. 10, 2010).

[40] AT&T, Consumer Software Developers, http://www.wireless.att.com/about/alliances/consumer-developer.jsp (last visited Sept. 10, 2010); T-Mobile Partner Network, http://developer.t-mobile.com/site/global/home/p_home.jsp (last
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When bringing innovative communications device to U.S. consumers, CTIA's member companies' balance the capabilities of the various wireless ecosystem components including hardware capabilities, platform functionality, application availability and network capacity products and services while considering all disabilities including hearing, visual, physical or cognitive impairments simultaneously. As the previous examples demonstrate, the Commission should recognize the distinct differences in the feasibility of accessibility features and solutions at various points of the wireless ecosystem including wireless handsets, operating systems and platforms, applications, content and third party solutions.[41] Given the current wireless ecosystem, the Commission should proceed cautiously with regard to any proposed regulatory actions that may unintentionally stifle the development of innovative solutions designed to meet the needs of the blind, deaf-blind, or low vision communities.

V. THE COMMISSION SHOULD UTILIZE THE ACCESSIBILITY & INNOVATION INITIATIVE TO ENGAGE KEY STAKEHOLDERS TO BUILD AWARENESS FOR ACCESSIBLE NEEDS AND SOLUTIONS AND EXLPORE SUBSIDY RECOMMENDATIONS IN THE NATIONAL BROADBAND PLAN.

As the previous sections demonstrate, the wireless industry has evolved from the classic, voice-only "brick phone" to all-in-one mobile computers that offer voice, text, Internet, video, and thousands of applications, with each generation of device and service

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visited Sept. 10, 2010); Verizon Wireless' Open Development Initiative and Developer Community, http://opennetwork.verizonwireless.com (last visited Sept. 10, 2010).

[41] Congress has also recognized that the cultivation of competitive and innovative communications markets requires a careful balancing of "achievable" accessibility solutions for advanced communications products and services. Congress expressly states that not every device must be accessible to every disability. H.R. Rep. No. 111-563 at 4; Twenty-First Century Communications and Video Accessibility Act of 2010, H.R. 3101, 111th Cong. §104(a) (2010); ("Communications and Video Accessibility Act").

incorporating more accessibility features and functions than the last. CTIA commends the Commission for recognizing in the National Broadband Plan the important contribution wireless technologies have provided the accessibility community and agrees that accessible mobile broadband technologies are a "big deal" for all Americans.[42] Through the Accessibility and Innovation Initiative, CTIA supports the Commission's efforts to raise awareness for accessible solutions among industry participants, encourage members of the accessibility community to develop accessible solutions for wireless handsets, platforms and networks, and ensure consumers are better informed about available accessible wireless products, services and applications.[43]

Even with the incorporation of accessibility features into innovative wireless devices, the usefulness of an accessibility solution, such as a screen reader, is relative to the accessibility of content, such as websites, books, images and applications. This issue may be further compounded as Congress considers requirements for mobile Internet browsers for consumers with limited vision and the U.S. Department of Justice considers applying accessibility requirements to commercial websites.[44] While some content producers may not be aware of the accessibility needs of potential visitors or users,

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[42] National Broadband Plan at 181; *see also* FCC Accessibility White Paper at 13.

[43] FCC, Accessibility and Innovation Initiative, http://www.broadband.gov/accessibilityandinnovation/ (last visited Sept. 11, 2010).

[44] On July 26, 2010, the U.S. Department of Justice published advanced notices of proposed rulemaking (ANPRMs) seeking comment on the **a**ccessibility of web information and services provided by entities covered by the Americans with Disabilities Act. U.S. Dep't of Just., Civil Rights Division**,** Nondiscrimination on the Basis of Disability; Accessibility of Web Information and Services of State and Local Government Entities and Public Accommodations, *Advance Notice of Proposed Rulemakings*, 75 Fed. Reg. 43,460 (July 26, 2010), *available at* http://www.ada.gov/anprm2010.htm. *See also* Communications and Video Accessibility Act at §104(a).

mobile versions of certain Internet content may actually be more accessible to persons utilizing screen readers.[45] The Commission should work with key stakeholders to raise awareness among content developers and producers regarding available accessible solutions and potential conflicts with other legal requirements.[46]

In addition, wireless broadband innovation and mobility deliver greater access for persons with disabilities than a regulatory approach that focuses solely on higher broadband speeds offered by fixed broadband products and services. As CTIA has highlighted for the Commission, consumers are less focused on the singular issue of higher broadband speeds, which the Commission emphasized in its most recent Section 706 Report.[47] Rather, consumers – particularly those in the blind, deaf-blind, and low vision communities – often want mobility, and are in many cases willing to trade some speed for the freedom of a ubiquitous connection – while still able to use advanced accessibility applications for communications and social networking, stream multi-media, download large files, and browse the Internet, among other features. An exclusive focus on the Commission's Section 706 Report demarcation of speeds of 4 Mbps down / 1

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[45] John Herman, *supra note* 30.

[46] For example, after being challenged by the Actors Guild for copyright infringement, Amazon announced that the ability for books on the Kindle to utilize text-to-speech would be left to the content producer. John Timmer, *Amazon decides Kindle speech isn't worth copyright fight*, ARSTECHNIA, March 9, 2009, http://arstechnica.com/gadgets/news/2009/03/amazon-backs-off-on-kindles-text-to-speech.ars.

[47] Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, GN Docket Nos. 09-137, 09-51, *Sixth Broadband Deployment Report*, FCC 10-129 ¶ 11 (rel. July 20, 2010) ("Sixth Broadband Deployment Report").

Mbps up simply ignores this reality, and the Commission instead should account for mobility in its consideration of broadband.

While the previous examples highlighted the potential of mobile devices to enhance communications access for persons with disabilities, the selection of a wireless device continues to be a highly personalized choice for every consumer based on a range of unique factors and product awareness, all of which are central to finding the right mobile device and service. Wireless carriers and manufacturers have taken a number of steps to educate the accessibility community and senior citizens about the plethora of available and affordable wireless products, services and features through company websites or direct outreach.[48] In addition, there a number of resources specifically for members of the blind, deaf-blind and low vision communities to provide news, reviews and recommendations about accessible wireless products, services and applications.[49]

As part of the Accessibility and Innovation Initiative, the FCC recently asked what industry can do to further ensure that consumers are aware of the great number of accessibility applications that are available now and may become available in the

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[48] *See* John P. Krudy, *Seniors Tackle Cell Phone Tech*, THE WASHINGTON TIMES, June 1, 2009 *available at* http://www.washingtontimes.com/news/2009/jun/01/seniors-tackle-cell-phone-tech/?feat=article_related_stories; *see also* AT&T, National Center for Customers with Disabilities (NCCD), http://www.wireless.att.com/learn/articles-resources/disability-resources/nccd.jsp (last visited Sept. 8, 2010).

[49] *See e.g.* American Federation of the Blind, AccessWorld, http://www.afb.org/aw/main.asp (last visited Sept. 11, 2010); Disaboom.com, http://www.disaboom.com/ (last visited Sept. 11, 2010); AppleVis, http://www.applevis.com/ (last visited Sept. 11, 2010) ("AppleVis is a community driven website that was created in response to a demand for somewhere that collected information on the accessibility of apps developed for Apple's iOS devices.").

future.[50] CTIA is pleased to inform the Commission that on September 23, 2010, CTIA will begin a collaborative process with consumer representatives, Commission staff and CTIA's member companies to determine the best way to make this information available to consumers by updating and expanding the wireless association's accessibility website, *www.AccessWireless.Org*. CTIA looks forward to the participation of consumer representatives and Commission staff and believes this collaborative effort will help consumers find information about the accessible wireless products, services and applications available in the fast-moving, innovative and ever-changing wireless industry.

Even with the availability of accessible wireless solutions and consumer awareness, CTIA notes that developing solutions for the deaf-blind community remains an evolving challenge and recognizes the significance of economic barriers for the deaf-blind community. Indeed, CTIA notes that Congress is actively considering changes to the Universal Service support mechanisms that would provide support for deaf-blind communications equipment. In addition, the Commission should move forward to explore the recommendation in the National Broadband Plan to update subsidy programs to address equipment needs of the deaf-blind community.[51] In addition, the Commission

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[50] Karen Peltz Strauss, *Private and Public Stakeholders to Collaborate on Better Informing Consumers About Accessible Apps*, BlogBand, July 26, 2010, http://blog.broadband.gov/?entryId=600838.

[51] National Broadband Plan at 182 (recommending that Congress authorize the Commission to use USF to provide competitively-based funding to "developers of innovative devices, components, software applications or other AT that promote accessibility"); H.R. 3101, 111th Cong. § 105 (authorizing the Commission to make available $10 million per year from the Telecommunications Relay Fund for deaf-blind equipment).

should also explore non-traditional subsidy options which could take advantage of wireless products convergence with health care devices.[52]

VI. CONCLUSION

As wireless handsets get "smarter", wireless adoption increases and the cost of handsets and service plans continue to decline, the Commission should recognize that the wireless industry is continuously making strides to provide increased accessibility for the blind, deaf-blind and low vision communities. CTIA and its member companies remain committed to meeting the needs of the accessibility community, and encourage the Commission to retain regulatory approaches that properly balance the need for flexibility in responding quickly to technological and market changes with voluntary initiatives and collaborations. Together these measures will ensure the delivery of the benefits of wireless products, services and applications to all Americans.

[52] As the Commission noted the convergence of communications and health care devices in the National Broadband Plan, the Commission should explore whether deaf-blind mobile communications equipment and services should be eligible for healthcare subsidies. *See* National Broadband Plan at 206.

Respectfully submitted,

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